

Docket:  
90065.99R272/17732.6323

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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|-------------|--|---|------------------------|
| Applicant:  | Jifa Hao, et al.   | ) |                        |
| Serial No.: | 09/654,845   | ) | Examiner:<br>Ori Nadav |
| Filed:      | September 15, 2000   | ) | Art Unit:<br>2811      |
| Title:      | POWER SEMICONDUCTOR<br>DEVICE WITH HIGH<br>AVALANCE CAPABILITY AND<br>PROCESS FOR FORMING SAME | ) |                        |

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JUL 15 2003

## RESPONSE AFTER FINAL

TECHNOLOGY CENTER 2000

Dear Sir:

Applicants request reconsideration and allowance of the final office action mailed May 13, 2003. The office action is clearly erroneous and the invention is patentable over the art of record for the reasons given below.

Claim 1 provides a four layer device with N+N- P+P- layers having recombination centers "disposed substantially in said N- and P- doped layers." The office action admits that the art of record fails to show or suggest recombination layers disposed in the N- and P- layers.

The rejection based on Schlangenotto '428 is clearly erroneous. The rejection admits that the reference does show recombination centers "disposed substantially in said N- and P- doped layers." It is also correct that the reference does not exclude recombination centers that are "disposed substantially in said N- and P- doped layers." But the latter is merely a restatement of what the reference does not show. Indeed, the reference has no information about the location of the recombination centers and thus does not show or suggest the importance of locating the recombination centers where they will improve the performance of the device. The rejection erroneously reasons that because the reference does not exclude the invention, it therefore shows it. That is illogical, unscientific and wrong.

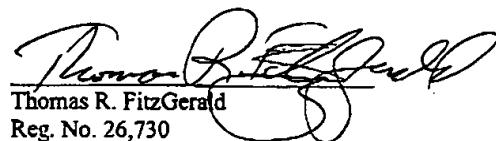
The specification demonstrates surprising and unexpected results when compared to the art of record. In the prior art identified by the Applicants, a four layer device has recombination centers that reduce avalanche. However, the

invention is dramatically more effective than the prior art (Lutz 5 747 872) that has its recombination centers located in the N- and N+ zones. See page 1 of the application.

Schlangenotto '428 has less disclosure than Lutz. Schlangenotto '428 fails to identify the location(s) of the recombination centers. One skilled in the art would not learn from Schlangenotto '428 where to put the recombination centers to improve performance. Schlangenotto '428 gives no location for the recombination centers and the locations given by Lutz are vastly inferior to the locations of the invention. See Table 1 for a comparison of the invention to a Lutz device.

The dramatic improvement in performance of the invention when compared to Lutz is a surprising and unexpected result. Schlangenotto '428 attaches no significance to locations of recombination centers. Lutz gives locations, but they are vastly inferior when compared to the locations of the claims.

Respectfully submitted,

  
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